IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

TELCORDIA TECHNOLOGIES, INC., Plaintiff/Counterclaim Defendant, v. CISCO SYSTEMS, INC., Defendant/Counterclaim Plaintiff.	)	Civil Action No. 04-876-GMS

CISCO SYSTEMS, INC.'S OPENING CLAIM CONSTRUCTION BRIEF ON UNITED STATES PATENT NO. 4,835,763

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NATURE AND STAGE OF THE PROCEEDINGS

On July 16, 2004, Telcordia Technologies, Inc. ("Telcordia") sued Cisco Systems, Inc. ("Cisco") for patent infringement in this Court. Telcordia's complaint alleged that Cisco infringes U.S. Patents Nos. 4,893,306 and RE 36,633, and sought injunctive relief and damages. On June 14, 2005, Telcordia amended its complaint to add allegations of infringement of U.S. Patent No. 4,835,763 ("the '763 patent"). Telcordia filed parallel suits against Alcatel USA, Inc ("Alcatel") and Lucent Technologies, Inc. ("Lucent"), Case Nos. 04-874-GMS and 04-875-GMS respectively.

Pursuant to the Court's Revised Scheduling Order of January 24, 2006, Cisco submits this brief in support of its proposed constructions of the disputed terms in the '763 patent. To promote efficiency, the defendants have coordinated the submission of the claim construction briefs. The discussion in this brief covers the '763 patent. Cisco hereby joins the briefs submitted by Lucent on the '306 patent and Alcatel on '633 patent. Cisco will participate in the claim construction hearing on all three patents-in-suit.

SUMMARY OF THE ARGUMENT

For the '763 patent, the parties' claim construction disputes boil down to two core issues. First, Cisco proposes a construction of the claim term "ring network" to mean a "closed loop," i.e., a ring. In contrast, Telcordia contends that a ring network is a "loop," but that this "loop" need not be closed. Cisco's construction is based on the claim language and the specification, which unequivocally depicts the "ring network" as a ring. Telcordia's results-based construction is inconsistent with every example in the specification and with the very purpose of the claimed invention. At bottom, Telcordia's

proposed construction—the ill-defined "loop"—effectively reads the word "ring" out of the "ring network" limitation.

Second, the parties dispute whether the core functions claimed in the patent—the evaluation, detection and monitoring of errors on a transmission—are performed on a high level signal which is composed of a number of channels interleaved together (Cisco's position) or on each constituent channel of that signal (Telcordia's position). This dispute permeates a number of different limitations. The claim language and specification of the '763 patent teach that these functions are performed on a high level signal, and nowhere discloses that any of these functions may be performed on the constituent channels while they are interleaved (or "multiplexed") together. Moreover, if Telcordia's position were accepted, the high level signal, which is central to the invention claimed in the '763 patent, would be read entirely out of the claims. Telcordia contends that the claims refer to these constituent channels in three different ways and do not refer to the high level signals at all. This is not the invention described and claimed in the '763 patent—it is the invention Telcordia conceived in this litigation. The Court should reject Telcordia's invitation to rewrite the claims in this way.

Telcordia's systematic attempts to whittle away the claims' legally mandated structural limitations and its unsupported constructions should be rejected as a results-based attempt to cover systems and methods that are neither claimed nor described in its patents. Cisco's proposed constructions should be adopted for the reasons given below.

CLAIM CONSTRUCTION LAW

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH*

Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005). However, these "claims must be read in view of the specification, of which they are a part." *Id.* at 1315. "Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that [1] stays true to the claim language and [2] most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Id.* at 1316 (quoting ***Renishaw PLC v. Marposs Societa' per Azioni***, 158 F.3d 1243, 1250 (Fed. Cir. 1998)).

In addition, the prosecution history "can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it otherwise would be." *Id.* at 1317.

STATEMENT OF THE FACTS

The '763 patent relates to what is conventionally known as a "ring network."[1] A ring network is a common configuration of a communications network. A ring network is made up of "nodes" that serve as junctions for network traffic.

Each node in a ring network is connected to two other nodes in a circular arrangement.[2] Each node sends communications to the node downstream on the circular

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[1] A copy of the '763 patent is attached to the Declaration Of Leslie Polizoti In Support Of Cisco's Opening Claim Construction Brief ("Polizoti Decl."), as Exh. A.

[2] *See* 1:10-17 ("A ring communications network is made up of nodes that are connected in tandem by a unidirectional communications path. Each node receives transmissions from the adjacent upstream node, and . . . transmits its own communications to the adjacent downstream node").

path connecting the nodes and receives communications from the node upstream. The nodes form a ring because the last node connects back to the first node. For example, in Figure 1 from the patent, reproduced below, the nodes labeled 1, 2, 3, and 4 are connected together in a ring network by ring labelled 100 (the outer ring in Figure 1).

Every node in the ring network can communicate with every other node in the ring, but can send communications around a ring only in one direction. For example, even though node 4 is upstream of node 1 on ring 100, node 1 can communicate with node 4 by sending a communication addressed to node 4 downstream to node 2. Node 2 can then send the communication to node 3, which will send the communication on to node 4.

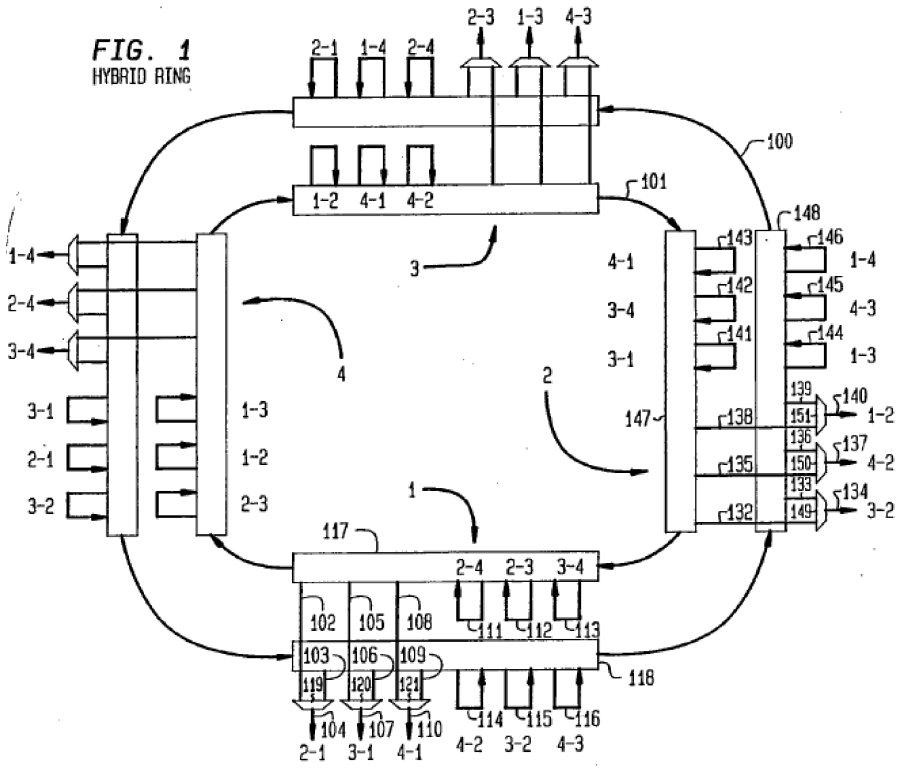

Figure 1. Nodes in a Ring Configuration

The patent explains that a problem with ring networks is that if a line connecting two nodes breaks or one of the nodes on the ring fails, the nodes will be unable to exchange communications, because communications can only travel one direction around the ring. 1:18-22. As shown in Figure 1, the prior art discloses that one way to solve this problem is to connect the same nodes with a second ring transmitting communications in the opposite direction around the nodes. 1:22-33. This type of ring network, called a "survivable ring network," gives each node two separate communication paths. If a line breaks or a node fails in a survivable ring network, the node upstream of the break can loop communications onto the ring sending communications in the opposite direction and survive the break.

The patentee claims that equipment in these prior art survivable ring networks was "complicated and costly." 1:34-37. The patentee proposes in the Summary of the Invention that he has developed a survivable ring network that will alleviate this complication and cost. 1:40-41.

In the claimed invention, nodes communicate with each other through a subrate channel. Each subrate channel is dedicated to communications from one node to another.[3] 2:36-38. For example, in Figure 1 subrate channels could be dedicated to communications from Node 1 to Node 2 or any other combination of two nodes. However, nodes in the ring network never transmit individual subrate channels around

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[3] The subrate channel is also called a subrate or a channel in the specification and a subrate communication or subchannel in the claims. 1:42-49; 1:57-60; Claims 1-8.

the ring. 1:41-52. Instead, the nodes combine or "multiplex"[4] all of the subrate channels destined for downstream nodes into a multiplexed signal that is then transmitted downstream. 1:46-49. The patent refers to this signal as the main signal or high level signal because it has a higher rate of transmission than the subrate signals that comprise it.[5]

When a node receives a high level signal from an upstream node, the node demultiplexes[6] the signal back into its constituent subrate channels. 1:42-44. The node then sends subrate channels destined for that node (called "local" channels) to receivers within that node to the next node. 1:44-46. The node sends channels destined for downstream nodes ("through" channels) to a multiplexer, which will multiplex the "through" channels with channels originating at the node to create a new high level signal. The new high level signal will then be transmitted to the adjacent downstream node along the ring. 1:12-17. Simultaneously, on the second ring, the node creates a high level signal by combining "local" subrate channels destined for the downstream nodes (here, downstream is the opposite direction, since the second ring transmits in the opposite direction), with the "through" channels received from the upstream node (again,

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4 To "multiplex" means "to interleave or simultaneously transmit two or more messages on a single channel." *See* Polizoti Decl., Exhs. E and F (IEEE Standard Dictionary of Electrical and Electronics Terms (4th ed. 1988)); Dictionary of Computers, Information Processing, and Telecommunications (2d ed. 1987)).

5 As discussed in more detail below, the patent uses various terms to describe the multiplexed signal including "subrate multiplexed signal" (1:41); "main signal" (1:43); "high level signal" (1:48); "higher level signal" (2:60-61; 3:26-28); and "multiplexed subrate signal" (3:5).

6 "Demultiplexing" is simply the opposite of "multiplexing": combined signals are separated out into individual signals.

upstream relative to the second ring) and transmits this identical signal on the second ring. 1:49-52. Therefore, every node transmits two copies of every subrate channel originating at that node—one multiplexed onto the first ring which travels clockwise around the ring and one multiplexed onto the second ring which travels counterclockwise around the ring. Similarly, every node receives two copies of every subrate channel destined for that node—one demultiplexed off the clockwise ring and one demultiplexed off the counterclockwise ring.

The value of this redundancy is realized when a line between the nodes breaks or one of the nodes fails. The arriving high level signal is monitored to determine whether the signal is defective. 3:4-6. If an arriving high level signal is defective, the node (after demultiplexing the high level signal into its individual subrate channels) will insert an error signal on the channels that were lost when the high level signal became defective. 3:9-11. All of the nodes in the ring will then treat these channels containing error signals as normal channels. 3:15-17. First, local channels terminating at that node will be sent to what the patent refers to as a "selector." 2:47-51. This selector receives both copies of the channel destined for the ring (one from each of the counterrotating rings) and checks each channel for an error signal. If the selector detects an error signal on one of the subrate channels, it will select the identical subrate channel from the other ring. 3:18-27. Second, "through" channels containing an error signal will be multiplexed with the channels originating at the node into a high level signal that is transmitted downstream. 3:22-27. When these error-containing channels reach their destination node and are demultiplexed from the high level signal, the selector within the node will detect the error signal and choose the identical, error-free channel from the other ring.

For example, Figure 2, reproduced below, depicts the ring network with a break 122 in both rings between nodes 1 and 4. As a result of this break, node 4 cannot receive a high level signal from node 1 along ring 101, nor can node 1 receive a high level signal from node 4. Once the absence of the high level signal is detected, nodes 1 and 4 will insert error signals on each subrate channel they were receiving and send the subrates on as normal. "Local" channels and "through" channels will be sent to the multiplexer to be combined back into a high level signal and sent to the next node. A selector associated with the receiving equipment compares the two copies of the subrate channel arriving at the node. If the selector detects an error signal in one of the channels, it will select the other signal and send it on to the receiving equipment. 1:57-61; 3:18-21. Through channels containing error signals are multiplexed as normal into a high level signal and transmitted downstream. According to the patent, the downstream node will receive this high level signal, which "appears normal," and demultiplex it into its constituent subrate channels. 3:28-31. The through channels will be sent on to the multiplexer, while the local channels will be sent to the selector. Again the selector will detect the error signal and select the other copy of the subrate channel from the other ring to send on to receiving equipment.

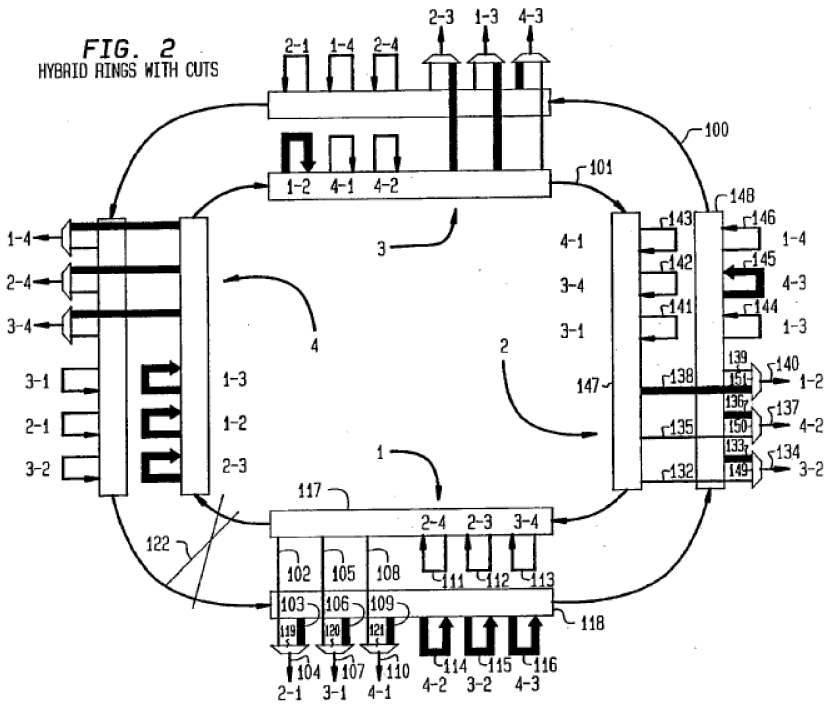


Figure 2. Ring Network with Break in Rings at 122

In sum, the patent describes a type of survivable ring network. The ring network consists of nodes interconnected by one ring sending a signal in one direction from node to node and another ring sending signals in the other direction through the same ring of nodes. Within each node the relevant steps are (1) creating two copies of each subrate channel, one for each ring, (2) multiplexing each subrate channel with other subrate channels into a high level signal that is transmitted to the next node on each ring, (3) demultiplexing incoming high level signals from each ring into constituent subrate channels, (4) sending local channels to receiving equipment within the node, and (5) sending through channels to the multiplexer to multiplexed into a high level signal to be transmitted downstream.

When there is a line fault or failed node, the disclosed ring network survives by (1) detecting line faults and failed nodes by monitoring and evaluating the

integrity of the incoming high level signal, (2) after the high level signal is demultiplexed, inserting an error signal on every subchannel that was part of the defective high level signal, (3) sending the subrate channels containing error signals to the selector or multiplexer as normal, and (4) detecting the error signal in the subrate channel and selecting the identical subrate channel from the other ring.

ARGUMENT

I. THE DISPUTED TERMS OF THE '763 PATENT

For the reasons set forth below, Cisco's constructions of the disputed terms in asserted claims 1, 2, 7 and 8 of the '763 patent should be adopted.

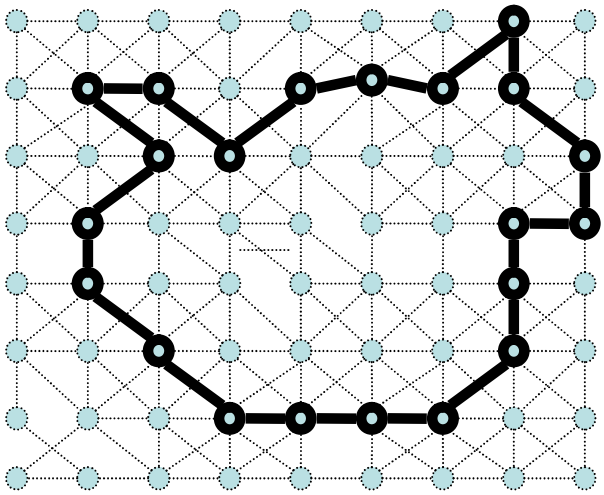
A. "a communication network having a plurality of nodes interconnected in a ring configuration" (claims 1 and 7)

Disputed Term	Telcordia's Construction	Cisco's Construction
a communication network having a plurality of nodes interconnected in a ring configuration	a communication network in which a plurality of nodes are connected to form a loop	a communication network in which all of the nodes are connected one after another to form a closed loop

The fundamental dispute here is whether the phrase "a communication network having a plurality of nodes interconnected in a ring configuration" describes a ring network. At first glance, the parties appear to agree that the network nodes must be in a circular formation. However, Telcordia's imprecise substitution of the word "loop" for "ring" and steadfast refusal to make clear that ***all*** the nodes in a ring network are in a ring formation, suggests that Telcordia is planning to later argue that a "loop" is something broader than the ring network that is the subject of the patent.

Specifically, the term "loop" could be construed to cover a wide-array of theoretical and arbitrary "loops" of nodes within potentially any type of network. The

figure below shows a mesh network which is very different from a ring network. In this mesh network, the nodes are connected by communication lines in a grid where each node can connect to a host of nodes in eight directions.[7] In this grid a "loop" of nodes can be drawn through the grid by arbitrarily connecting nodes, like a dot-to-dot puzzle. Although this path within the mesh network may be considered a loop in colloquial English, it is not a ring network as disclosed in the patent.



Therefore, the fundamental dispute here is whether "a communication network having a plurality of nodes interconnected in a ***ring*** configuration" describes a ring of nodes in a ring network or merely a "loop" of nodes in any type of network. Cisco's construction, based on the claims and specification, uses the patent's own description of a ring as its foundation. Telcordia's construction is based on its analysis of the accused systems.

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[7] In the mesh network shown, the most connections depicted for single node is eight, but a mesh has no upper limit on the number of direct connections a node may have.

Every description of the invention in the Summary of the Invention and every specific embodiment in the Detailed Description discloses that the patented ring network has nodes connected one after another to form a closed circle. *See, e.g.*, 1:41 ("A subrate multiplexed signal is utilized for ***ring*** communications.");[8] 1:48-50 ("high level signal is transmitted to ***the adjacent downstream node***"); 1:61-64 ("a break in both ***rings between two adjacent nodes***"); 2:1-2 ("my invention ceases functioning as a ring if the ring is broken"); 2:32-34 ("***ring*** 101, which carries signals in a ***clockwise direction***, and . . . ***ring*** 100, which carries signals in a ***counterclockwise direction***").[9] Construing the claims consistent with the specification's disclosure of a ring communications network is appropriate, especially where the specification never suggests a broader scope. *See Nystrom v. Trex Co.*, 424 F.3d 1136, 1145 (Fed. Cir. 2005) (holding that "there [is] nothing in the intrinsic record to support the conclusion that a skilled artisan would have construed the term [ ] more broadly" because "the written description and prosecution history consistently use the term 'board' to refer to wood . . cut from a log").

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[8] Emphasis added throughout unless indicated otherwise.

[9] Further support for using "closed loop" to describe a ring network comes from a patent cited in the specification. *See Kumar v. Ovonic Battery Co.*, 351 F.3d 1364, 1368 (Fed. Cir. 2003) ("prior art cited in a patent or cited in the prosecution history of the patent ***constitutes intrinsic evidence***."). The '763 specification characterizes the McNeilly patent as disclosing a prior survivable ring network. 1:24-33. The McNeilly patent in turn describes its ring as a "***closed loop*** unidirectional transmission line." *See* Polizoti Decl., Exh. G (U.S. Patent No. 3,652,798) at 1:46-49 (emphasis added). The Federal Circuit has interpreted a term based on its usage in the prior art that was cited in the patent by explaining that "[w]hen prior art that sheds light on the meaning of a term is cited by the patentee, it can have particular value as a guide to the proper construction of the term, because it may indicate not only the meaning of the term to persons skilled in the art, but also that the patentee intended to adopt that meaning." *Arthur A. Collins, Inc. v. Northern Telecom Ltd.*, 216 F.3d 1042, 1045 (Fed. Cir. 2000).

Telcordia's construction of a "ring" as a mere "loop," with no other limitation, is inconsistent with the specification's definition of "ring" and the specification's disclosure of nodes in a ring network. Although a "ring" as used in the patent is a type of loop (i.e., a closed loop), the specification never implies that the term "ring" covers a loop of nodes that could be drawn arbitrarily through a different network. Indeed, the purpose of the invention is to solve a particular problem associated with a ring configuration—if a line or node fails, the network fails. The patent solves this by problem using a particular benefit of a ring configuration—the ability to send communications in two directions around the ring. *See* Summary of the Invention, 1:40-66. The same problem would not exist in a mesh network, as shown above, because each node in the mesh has several adjacent neighbors to which it can route communications, allowing the network to simply to route around the failed node or line. In any event, there is no disclosure as to how the "invention" would work in any other configuration.

In sum, the patent makes clear that the claims were not intended to encompass networks other than ring networks. *See Aquatex Indus. v. Techniche Sols.*, 419 F.3d 1374, 1380 (Fed. Cir. 2004) (holding that "based upon the teachings of the specification," one of ordinary skill in the textile manufacturing industry would understand that commercial "fiberfill batting material" does not include natural fibers); *see also SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1340 (Fed. Cir. 2001).

B. "multiplexed subrate communications" and "evaluating the integrity of the multiplexed subrate communications" (claims 1 and 7)

Disputed Term	Telcordia's Construction	Cisco's Construction
multiplexed subrate communications	constituent channels of a main signal	high level signals that can be separated into their constituent channels
evaluating the integrity of the multiplexed subrate communications	determining if a defect exists with the multiplexed subrate communications	detecting whether each high level signal is defective (*e.g.*, whether there is a cut link or a failed node)

The parties dispute the meaning of the term to "evaluate the integrity of the multiplexed subrate communication." The parties agree that to "evaluate the integrity" of something in the context of the claim means to determine whether something is defective. The parties dispute *what* is evaluated for a defect: the high level signal (Cisco's position) or the constituent channels of the high level signal on a one-by-one basis (Telcordia's position).

Telcordia's position directly contradicts the claims and specification. First, as discussed in section (a) below, the term "multiplexed subrate communications" describes a high level signal that is transmitted from node to node around a ring. Second, as discussed in section (b) below, the patent discloses only the evaluation of high level signals as they arrive at a node, while evaluating the integrity of constituent channels of the high level signal is neither disclosed nor implied. In fact, the patent teaches that the nodes are *incapable* of evaluating the integrity of the subrate channels until they are demultiplexed out of the high level signal. Therefore, the properly supported

construction of "evaluating the integrity of the multiplexed subrate communications" is "detecting whether each ***high level signal*** arriving at a node is defective."

1. "multiplexed subrate communications" are high level signals that can be separated into their constituent channels

The specific language "mulitiplexed subrate communications" does not appear anywhere in the specification. However, the use of "multiplexed subrate communications" in the claims and the description of the claimed invention informs the proper construction of this term. *See Phillips*, 415 F.3d at 1314 (a term's usage "within the claim provides a firm basis for construing the term").

The specification describes two types of signals used in the claimed survivable ring network: (1) an individual channel or subrate dedicated to communications between two nodes, and (2) a high level or main signal created by multiplexing subrates together. *See* 2:35-38; 1:42-49. Of these two signals, the high level signal clearly corresponds to the "multiplexed subrate communications" in the claims. First, the patent describes both the "multiplexed subrate communications" and the high level signal as being formed by multiplexing together subrate channels. For example, in Claim 3 "multiplexers multiplex selected subrate communications . . . ***into a multiplexed subrate communication***." Similarly, in the Summary of the Invention, "channels destined for downstream nodes . . . are multiplexed with originating local channels [into a] resultant ***high level signal***." 1:46-48. In both situations, multiple subrate channels are multiplexed into a single signal.

Telcordia's attempt to construe "multiplexed subrate communications" as an individual channel within a high level signal contradicts both the claims and

specification. The terms "subrate communications" and "subchannels" represent the individual subrate channels in the claims. Indeed, if "multiplexed subrate communications" is construed as a constituent channel of a high level signal then the claims have no term that corresponds to the high level signal itself but three terms for the individual channels. This is not what the patentee intended: the claims maintain a clear distinction between the claim terms "multiplexed subrate communications" and "subrate communications" or "subchannels" that also appear in the claims.[10] For example, Claim 3 makes clear that a group of subrate communications are multiplexed into a ***single*** multiplexed subrate communication: "multiplexers multiplex selected subrate communications . . . into ***a*** multiplexed subrate communication for transmission." This corresponds to how a single high level signal is described as being formed from multiple subrate channels. *See* 1:46-49 ("channels . . . are multiplexed with . . . channels, and ***the*** resultant high level signal is transmitted.").

The claims and specification provide that "multiplexed subrate communications" represent the high level signal not the individual constituent channels that comprise the high level signal.

2. "evaluating the integrity of the multiplexed subrate communications" means "detecting whether each high level signal is defective"

The specification discloses only two specific examples of "evaluating the integrity of the multiplexed subrate signals": detecting either "the ***absence of a carrier***

[10] The use of "multiplexed subrate communications" in the other claims is especially relevant in understanding its meaning in Claims 1 and 7. As the Federal Circuit repeatedly has instructed, "this court interprets claim terms consistently throughout various claims of the same patent." *Callicrate v. Wadsworth Mfg., Inc.*, 427 F.3d 1361, 1371 (Fed. Cir. 2005).

signal in an analog signal environment, or the ***lack of any incoming signal*** in a digital environment." 3:6-9. Both are examples of evaluating the integrity of the high level signal as a whole rather than individual channels within the high level signal. A cut link or failed node upstream of a node would affect the integrity of the whole high level signal.[11] In this context, it would not make sense to examine individual channels within the high level signal because a cut link or failed node would affect the whole high level signal.

The Summary of the Invention section also supports this conclusion: "[i]f a node detects a fault in an incoming line, an error signal is placed on all of the channels ***following the demultiplexing***." 1:52-54. When a node detects a fault in an incoming line (by detecting the high level signal's lack of integrity), the high level signal is demultiplexed, and then an error signal placed on all channels.

In contrast, Telcordia's assertion that the claims encompass evaluating the integrity of individual channels while they are in the high level signal has absolutely no support in the specification. The patent never suggests that the integrity of individual channels within the higher level signal is monitored or evaluated. Instead, the patent states that the claimed invention does not monitor individual channels within a higher level signal. 3:28-30 ("Because the ***higher level signal*** [containing channels with error

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[11] The claimed survivable ring network was designed to survive cut links and failed nodes. *See* Abstract ("A survivable ring network is disclosed that can withstand a ***cut link*** or ***failed node***."); 1:61-66 (using the patent's method "***a break in both rings*** between two adjacent nodes will not cause a failure in the system . . . . Similarly, the ***complete failure of a node*** will not destroy communications among the remaining nodes."); 3:49-54 ("Each node operates in the above manner to insure continuity of communications along the nodes following a ***ring failure***; or . . . a ***multiple ring failure*** between two adjacent nodes. ***If a node fails***, the same process will maintain communications among the remaining nodes.").

signals] arriving at node 2 on ring 100 ***appears normal***, controller 148 demultiplexes the higher level signal into its six subrate channels."). Only after demultiplexing are the individual subrate channels examined. 3:18-27. Even then, the channels are examined only for the presence of an error signal, a function associated with the selector means in the claims.[12] *See* Claim 2 ("selector means . . . for selecting, in response to ***detection of said error signal on one of the subrate communications***, another of the subrate communications that does not contain said error signal"); *cf.* Claim 1 ("monitoring means . . . for evaluating the integrity of the muliplexed subrate communications").

In sum, Cisco's construction here is well-supported by the intrinsic evidence, while Telcordia's position directly contradicts the claims and specification. The properly supported construction of "evaluating the integrity of the multiplexed subrate communications" is "detecting whether each ***high level signal*** arriving at a node is defective."

C. "associated with both the first ring and the second ring" (claim 7) and "associated with the first ring and the second ring" (claim 1)

Disputed Term	Telcordia's Construction	Cisco's Construction
associated with the first ring and the second ring (claim 1) associated with both the first ring and the second ring (claim 7)	related to the first ring and the second ring	shared by both the first ring and the second ring

[12] In Claims 1 and 7 "evaluating the integrity of the multiplexed subrate commuications" is the function associated with the means-plus-function term "monitoring means." *See* IV.A.6 below. The examination of the subrate channels, in particular to detect error signals, is a function explicitly associated with the "selector means." *See* Section V.A.7 below.

The asserted claims require a monitoring means "associated with the first ring and second ring" (Claim 1) or "associated with both the first ring and the second ring" (Claim 7). Properly construed in accordance with the words chosen by the patentee, as reaffirmed by the prosecution history, this term means that the first ring and second ring share the same monitoring means. Telcordia's proposed construction, "related to the first ring and the second ring," on the other hand, introduces unnecessary ambiguity.

A term's usage "within the claim provides a firm basis for construing the term." *Phillips*, 415 F.3d at 1314; *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003). To that end, courts "must look at the language of the [claim] as a whole and consider the grammatical structure and syntax." *Adang v. Fischoff*, 286 F.3d 1346, 1352 (Fed. Cir. 2002). Here, the asserted claims require that the monitoring means must be able to "detect[] a lack of integrity on said multiplexed communications on the first ring or the second ring or ***both*** the first ring and the second ring."[13] A monitoring means used by only one of the rings could not perform the claimed function, because it could only evaluate the integrity of a single ring, rather than both rings as required by the claims. Thus, a straightforward reading of the claim language dictates that in order for the monitoring means to detect a fault on both rings, the same monitoring means must be shared by both the first and the second ring.

The patentee's amendment of the claims during prosecution confirms that the monitoring means is shared by both the first ring and the second ring. "[T]he

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[13] Claim 1 recites a monitoring means "for evaluating the integrity of the multiplexed subrate communications on the first ring ***and*** the second ring."

prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Phillips*, 415 F.3d at 1317. Here, the originally filed claims recited "evaluating the integrity of the multiplexed subrate communications on each of said associated rings with monitoring means."[14] Polizoti Decl., Exh. B at 15 (Original Application at 11). The examiner rejected these claims because "it is unclear what structure 'the associated rings' is referring to." Polizoti Decl., Exh. C at 30 (Oct. 6, 1988 Office Action at 2). In response, the patentee amended the claims to require "evaluating the integrity of the multiplexed subrate communications on the first ring and the second ring ~~[each of said associated rings]~~ with monitoring means associated with both the first ring and the second ring."[15] Polizoti Decl., Exh. D at 37 (Jan. 10, 1989 Amendment at 4).[16] The patentee then explained that "claim 1 now explicitly calls for 'the first ring and the second ring' instead of 'rings' so as to clarify the interrelationship among the various claim elements," and "claim [7] now calls for 'evaluating the integrity . . . on the first ring and the second ring with monitoring means ***associated with both the first ring and***

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14 Claim 1 claimed "monitoring means, associated with the rings, for evaluating the integrity of the multiplexed subrate communications on each of the associated rings . . . ." Polizoti Decl., Exh. B at 12 (Original Application at 8).

15 Underlining indicates added material, brackets with strikethrough indicate removed material.

16 Claim 1 was similarly amended to claim "monitoring means, associated with the first ring and the second ring [~~rings~~], for evaluating the integrity of the multiplexed subrate communications on the first ring and the second ring, respectively [~~each of the associated rings~~]." Polizoti Decl., Exh. D at 34-35 (Jan. 10, 1989 Amendment at 1-2).

the second ring', thereby clarifying any ambiguity in a manner commensurate with claim 1." *Id.* at 38-39. Thus, at the examiner's behest, the patentee amended the claims to make clear that the monitoring means was shared by "***both*** the first ring and the second ring." The prosecution history therefore confirms that the patentee meant what he said, namely that the monitoring means is shared by both rings.

Telcordia's construction, however, attempts to reintroduce the very ambiguity that the patentee eliminated during prosecution. Indeed, Telcordia's refusal to agree to Cisco's interpretation suggests that this ambiguity is intentional.

Telcordia's construction disconnects the claim term from the surrounding claim language. Telcordia apparently would like the word "both" to mean "either," such that the claims would cover a monitoring means "associated with ***either*** the first ring or the second ring." However, the claim language expressly states that "both the first ring and the second ring" are associated with the monitoring means. The claim language also requires that the monitoring means be able to detect a fault on "both the first ring and the second ring." Claim 7. Telcordia's construction would render that claim functionality an impossibility. The patentee could have drafted the claim to require "a first monitoring means associated with a first ring, and a second monitoring means associated with the second ring," in a manner similar to his claiming of "a first ring" and "a second ring." Instead, the patentee recited a single monitoring means "associated with both" rings, and this Court must "give effect to the terms chosen by the patentee." *K-2 Corp. v. Salomon S.A.*, 191 F.3d 1356, 1364 (Fed. Cir. 1999).

D. "inserting an error signal on designated ones of the subrate communications" (claim 1) and "inserting an error signal on designated ones of said subrate communications" (claim 7)

Disputed Term	Telcordia's Construction	Cisco's Construction
inserting an error signal on designated ones of the subrate communications (claim 1) inserting an error signal on designated ones of said subrate communications (claim 7)	inserting an error signal on subrate signals for which fault conditions are detected	inserting an error signal on the channels following the demultiplexing

Claims 1 and 7 require "inserting an error signal on designated ones of said subrate communications." The claim language is ambiguous as to ***when*** the error signals are inserted on "designated ones of the subrate communications." However, the '763 patent uniformly describes the invention as inserting an error signal on the channels ***after*** the channels have been demultiplexed.

In construing claims, "the specification is the single best guide to the meaning of a claim term." *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 2006 WL 335609 at *4 (Fed. Cir. Feb. 15, 2006) (attached as Polizoti Decl., Exh. H). Here, the '763 patent explains that the "invention" requires first detecting a fault on a multiplexed signal, demultiplexing the signal into constituent channels, and then inserting error signals onto each of these demultiplexed channels. 1:40-54. In particular, the Summary of the Invention makes clear that "[i]f a node detects a fault in an incoming line, an error signal is placed on all of the channels ***following the demultiplexing.***" 1:52-54. Such statements in the Summary of the Invention are "not limited to describing a preferred embodiment, but more broadly describe the overall invention[ ] of [the] patent[]." *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1348 (Fed. Cir. 2004).

The three columns of the '763 patent describing various embodiments reinforce the statements in the Summary of the Invention. The controller is responsible for inserting error signals. Throughout the patent, the patentee explains that the controller performs a two-step process to insert error signals: (1) demultiplex the high level signal into constituent channels, and (2) then insert the error signals onto those constituent channels. For example, the patent explains that "[t]he channel carrying communications between nodes 1 and 2 would be extracted from ring 101 by controller 117 (by demultiplexing the signal on the ring 101)." 2:42-45. The patent then notes that if "node 1 recognizes major line fault 122 in ring 100, controller 118 ***inserts an error signal onto the six subrate channels***. This could illustratively be accomplished by inserting a string of 1's on each channel in a digital environment." 3:9-13. Likewise, in describing another ring configuration, the '763 patent first explains that the "[c]ontrollers 409 and 410 insert and ***extract*** communications on rings 403 and 404." 4:7-8. Then, if a break occurs on the rings, "controllers 412 and 410 will insert error signals on associated ***subrate paths***." 4:9-12. The '763 patent repeatedly states that the error signals are inserted onto the "subrate channels," "each channel," or the "subrate paths." Because the subrate channels or subrate paths refer to the demultiplexed signals, these passages confirm the Summary of the Invention's statement that the error signals are inserted after the high level multiplexed signal is demultiplexed. *See* Section V.2.a.

The Summary of the Invention and the description of the particular embodiments "consistently, and without exception, describe[]" the claimed invention as inserting an error signal after demultiplexing the high level signal. *Curtiss-Wright*, 2006 WL 335609 at *5. Such consistent description in the specification "is the single best

guide to the meaning of a claim term." *Phillips*, 415 F.3d at 1315. Indeed, nowhere does the '763 patent ever suggest a system that inserts an error signal onto the high level signal, nor does it disclose equipment capable of doing so. Because there is nothing in the intrinsic record to support a conclusion that a skilled artisan would interpret the claim to cover a system that inserts an error signal onto the high level signal, the claims cannot be stretched to cover such a system. *Nystrom v. Trex Co.*, 424 F.3d 1136, 1145 (Fed. Cir. 2005) (holding that "there [is] nothing in the intrinsic record to support the conclusion that a skilled artisan would have construed the term [ ] more broadly" because "the written description and prosecution history consistently use the term 'board' to refer to wood . . cut from a log"); *Norian Corp. v. Stryker Corp.*, 432 F.3d 1356, 1360 (Fed. Cir. 2005) (construing term "sodium phosphate" as requiring single-solute solutions because "each of the of the solutions described in the specification uses only a single solute, and the specification makes no clear reference to using a mixture of multiple solutes in a single solution"); *Aquatex*, 419 F.3d at 1380.

E. "the detection of said error signal on said at least one of the subrate communications" (claims 2 and 8)

Disputed Term	Telcordia's Construction	Cisco's Construction
the detection of said error signal on said at least one of the subrate communications (claim 2) the detection of said error signal on said at least one of the subrate communications (claim 8)	Detection of an error signal inserted into at least one of the subrate signals	Detecting an error signal on one or more of the channels following the demultiplexing

In contrast to the "evaluating the integrity of the multiplexed subrate communications" limitation in claims 1 and 7 discussed above, which refers to detecting

whether the high level signal is defective, this term refers to detecting whether the constituent subrate channels contain error signals. The issue with this claim limitation is, again, when the action is taken on the subrate communications.

As explained above, it is clear from the patent that the subrate channels cannot be evaluated, or manipulated in any way, until they are extracted, or demultiplexed, out of the high level multiplexed signal. For example, the patent explains that if the high level signal arriving at a node "appears normal," the high level signal must be demultiplexed before the node can evaluate the subrate channels for defects: "Because the ***higher level signal arriving at node 2 on ring 100 appears normal***, controller 148 ***demultiplexes*** the higher level signal into its six subrate channels." 3:28-30.

Therefore, because there is no disclosure as to how the subrate channels can be checked for error signals while multiplexed together in the high level signal, the subrate channels must be demultiplexed out of the high level signal before error signals can be detected.

F. "monitoring means" (claims 1 and 7)

Construing a means-plus-function limitation is a two step process. *See JVW Enters. Inc. v. Interact Accs., Inc.*, 424 F.3d 1324, 1330 (Fed. Cir. 2005). First, the court must identify the claimed function. *Id.* Second, the court must identify the corresponding structure, if any, described in the specification that performs the claimed function. *Id.* A "structure disclosed in the specification qualifies as 'corresponding' structure ***only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim***." *Default Proof Credit Card Sys., Inc. v. Home Depot, Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). Accordingly, in a means-plus-

function claim when "an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112." *Id.*

1. "monitoring means" is a means-plus-function term in both Claims 1 and 7.

Each asserted claim requires a "monitoring means . . . for evaluating the integrity of the multiplexed subrate communications on the first and second ring." The parties agree that this limitation in claim 1 is written in means-plus-function format and should be construed under Section 112, ¶ 6. Telcordia, however, contends that the "monitoring means" limitation in claim 7 is not a means-plus-function limitation. This is erroneous. The law is well-settled that use of the word "means" creates a presumption that § 112, ¶ 6 applies. *See Callicrate*, 427 F.3d at 1368. This presumption is further strengthened by Telcordia's acknowledgment that the same "monitoring means" term in claim 1 is a means-plus-function limitation. As the Federal Circuit has repeatedly instructed, "this court interprets claim terms consistently throughout various claims of the same patent." *Id* at 1371. Accordingly, the term "monitoring means" in both claims 1 and 7 should be construed as a means-plus-function limitation.

2. The specification discloses no structure for "monitoring means"

The "duty to link or associate structure to function is the *quid pro quo* for the convenience of employing § 112, ¶ 6." *Default Proof*, 412 F.3d at 1298. A means-plus-function term is indefinite when the specification fails to provide sufficiently definite structure to satisfy section 35 U.S.C. § 112, ¶ 2 of the Patent Statute. This is the dispute with respect to the "insertion means" and "selector means" terms discussed below. Here, however, the case is stronger: the term "monitoring means" is indefinite

because the specification fails to provide ***any*** structure for performing the claimed function of "evaluating the integrity of the multiplexed subrate communications on the first and second ring."

The '763 patent contains only one reference to the claimed function, simply stating that "[e]ach node continuously monitors and evaluates the integrity of the multiplexed subrate signals arriving at the node." 3:4-9. This passage, however, fails to disclose any structure related to the function of monitoring or evaluating.

Attempting to save its claims, Telcordia asserts that the corresponding structure is "circuitry at a controller." This argument fails for two reasons. First, nothing in the specification "clearly links or associates" a controller with the claimed function of "evaluating the integrity of the multiplexed subrate communications on the first and second ring." Throughout the '763 patent specification, the term "controller" is discussed as performing the functions of multiplexing signals,[17] demultiplexing signals,[18] and inserting error signals.[19] Yet the '763 patent says nothing about the controller monitoring or evaluating any of the signals. Had the patentee desired to associate the controller with the claimed function, he would have done so as he did with respect to other functions. The specification, however, does not even suggest, let alone "clearly link or associate,"

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[17] "Controllers 117 and 118 then multiplex the three channels originating from node 1 with the three through channels, and transmit the resultant higher level." 2:58-61.

[18] "Controller 118 would extract the associated channel of ring 100 and send it to selector 199." 2:45-48. "Controller 148 demultiplexes the higher level signal into its six subrate channels." 1:29-30.

[19] "Controllers 412 and 410 will insert error signals on associated subrate paths." 4:10-12.

that the controller performs the claimed function of "evaluating the integrity of the multiplexed subrate communications." The absence of any linkage between the controller and "the recited function ***is especially striking given the explicitly clear association*** provided between" the controller and the inserting function. *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1216 (Fed. Cir. 2003). Simply put, it is not enough that the controller is disclosed in the specification—it must be linked to the claimed function. *Id.* at 1217-18 (holding as a matter of law that software was not corresponding structure to claimed function).

Second, the specification refers to the "controller" without providing any underlying structure. Nowhere in the patent is there any mention, much less description, of any "circuitry" at a controller. Indeed, the words "circuit" or "circuitry" never even appear in the '763 patent specification. Under such circumstances, the Federal Circuit has rejected a patentee's attempt to associate certain parts of a structure to a recited function when "none of those parts are disclosed in the specification." *Default Proof*, 412 F.3d at 1300 (holding claim indefinite for failure to disclose corresponding structure). During the parties' meet and confer, Telcordia suggested that "circuitry at the controller" may be known by a person skilled in the art and Telcordia's chart cites a portion of the specification stating that "those of ordinary skill in the art could make obvious modifications to my invention without departing from its scope." 4:49-51. The Federal Circuit, however, has rejected this argument as a matter of law because the knowledge of "one of ordinary skill in the art cannot supplant the total absence of structure from the specification." *Default Proof*, 412 F.3d at 1302. "It is not proper to

look to the knowledge of one skilled in the art apart from and unconnected to the disclosure of the patent." *Med. Instrumentation*, 344 F.3d at 1212.[20]

The asserted claims therefore are indefinite for failure to disclose or clearly associate any structure for performing the claimed function.

G. "selector means" (claim 2)

Claim 2 recites a "selector means associated with the demultiplexers for selecting . . . another of the subrate communications that does not contain said error signal." The recited function is "selecting . . . another of the subrate communications that does not contain said error signal." The presence of the word "means" creates a presumption that § 112 paragraph 6 applies. *Callicrate*, 427 F.3d at 1368. "This presumption collapses, however, if the claim itself recites sufficient structure, material, or acts to perform the claimed function." *Id.*

Claim 2 expressly recites a "***selector*** means." But the parties agree that a "selector" is insufficient recitation of structure in the claim for performing the claimed function, and therefore does not overcome the presumption that § 112, ¶ 6 applies. Consequently, the parties agree that recourse to the specification is necessary to identify adequate structure. However, the passages identified by Telcordia as disclosing adequate structure merely refer to a "selector," and do not provide any description of the selector's physical or logical structure.

Compliance with § 112, ¶ 6 requires that the specification provide "an adequate disclosure showing what is meant by that language." *Default Proof*, 412 F.3d at

[20] For these reasons, the claim limitation "inserting means . . . for inserting an error signal" is also indefinite because the only corresponding structure that Telcordia is able to identify is "circuitry at the controller."

1298. The patentee's identification of a generic selector without more fails to meet that obligation. The reason is straightforward: If recitation of a "selector" in the claim language does not provide sufficient structure to remove a claim from the purview of § 112, ¶ 6 (as Telcordia concedes), then the specification's reference to a "selector" without providing any additional structural information necessarily fails to disclose adequate structure. It cannot be that the structure corresponding to a "selector means" is a selector. If that were the case, all a patentee would ever need do to comply with § 112, ¶ 6 would be to drop the word means in the specification. *See Med. Instrumentation*, 344 F.3d at 1222 ("The public should not be required to guess as to the structure for which the patentee enjoys the right to exclude. The public instead is entitled to know precisely what kind of structure the patentee has selected for the claimed functions.").

As a result, claim 2 is indefinite for the additional reason that it fails to disclose or clearly associate sufficient structure for performing the claimed function "for selecting . . . another of the subrate communications that does not contain said error signal."

CONCLUSION

For the reasons set forth above, Cisco respectfully requests that the Court adopt its proposed constructions for the disputed claim terms.

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CERTIFICATE OF SERVICE

I hereby certify that on March 3, 2006 I electronically filed the foregoing *Cisco Systems, Inc.'s Opening Claim Construction Brief on United States Patent No. 4,835,763* with the Clerk of the Court using CM/ECF, which will send notification of such filing to Steven J. Balick, Jack B. Blumenfeld, John G. Day, Tiffany G. Lydon, Geoffrey Mason, Leslie A. Polizoti and John M. Williamson.

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